SECRET

MONTHLY REPORT

CONTRACT [redacted]

25X1

PAR 217

10 July 1964

SUBJECT: Optimization of the Laser

TASK/PROBLEM

1. Explore the production of 0.5 micron (blue-green) laser radiation by harmonic doubling in KDP and AOD crystals.

DISCUSSION

2. During this period a laboratory set-up was designed and tested which enables simultaneous measurement of the 1.06 micron energy incident on the KDP crystal and the 530 millimicron energy generated by the crystal. The detecting devices for the two wavelengths are phototubes: an S-4 surface for the 530 millimicron radiation, and an S-1 surface for the 1.06 micron radiation.

3. The need for the 1.06 micron monitor is twofold. First, the laser output must be measured to determine the harmonic conversion efficiency. Second, the energy density to which the KDP crystal can be exposed without physical damage will be a function of input radiation, and this threshold level must be determined. This set-up should be adequate to completely evaluate the second harmonic output.

PLANNED ACTIVITY

4. During the next period, absolute output and output efficiency of the KDP crystals will be measured. Measurements will be started on the effects of using two or more crystals in series, increasing the 1.06 micron input radiation, and increasing the incident radiation density by focusing.

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See PAR-216 See "Quarterly Review Conference" 8 June 64